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## EFFICIENT SUPERVISION OF WEIGHTS AND MEASURES

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In the exchange or barter of trade there is always, either expressed or implied, some more or less definite element of specification as to quality and quantity. The more readily controlled and, in many respects, the more important element is the one of quantity because it is largely a matter of fact, whereas the element of quality is very often a matter of opinion. Even the quality element, taking into consideration its nutritive value, very often is a matter of appearance. The determination of the quantity element is the subject of weights and measures.

Immediately where there has begun trading between the people or a commercial intercourse, however simple, there must necessarily arise the establishment of certain definite standards for comparison in order to have intelligent, equitable dealing. As soon as this trading becomes more complex among the people of one tribe, or of a state or of a nation, or as the commerce increases among the people or among the nations, there arises the necessity of enforcement of the use of certain definite standards for comparison of quantity and regulations for the ordinary, everyday business dealings of one man with another, in order to protect the consumer as well as the dealer. Every civilized nation has taken steps or established statutes in an attempt to insure the correctness of the weighing and measuring devices on the assumption that, if such devices were correct, then the quantities measured by them would be correct. Such an assumption neglects the failings of some human beings in wishing to take advantage of their fellows. Consequently it has been found necessary to take the next evident step, namely, insuring that the devices were properly used after they were correct. It may be remarked in passing that, where commodities are sold in bulk and from bulk, when weighed and measured from correct weighing and measuring devices, ninety-five per cent of such quantities delivered are correct. The matter of weights and measures resolves itself into two main divisions, first, the instrumental side, and secondly, the securing of

proper use of correct instruments. Of these the latter is by far the more important inasmuch as, expressed or implied, the weight or measure enters into every commodity dealt with in the ordinary transactions of trade. It is, therefore, highly important to insure by law equity, fairness and honesty in such dealings and thus to protect the quantity delivered.

A necessary department in every municipality is one that has supervision of the weighing and measuring devices used in trade. This includes the weights, scales, liquid and dry measures, water meters, gas meters and electric meters. Such department shall be held responsible for the correctness of such weighing and measuring devices and should hold the owners or users thereof responsible for their correct use. Such functions of the department, when properly and fearlessly exercised, would be of direct benefit to the municipality in checking the quantity, and very probably the quality, of the commodities delivered to the various departments or institutions supported by the municipality; these would include, of course, feed, coal, hardware, dry goods and other supplies. Secondly, its functions would be of direct benefit to the dealers, both wholesale and retail, in protecting the honest and legitimate dealer against the inroads of those who sell in indefinite terms and who are the only competitors which the honest dealers cannot conscientiously meet. Thirdly, these functions would be of primary importance to the consumers because they would be directly benefited in their daily purchases of the necessities of life. The consumers would have the further stimulating and moral effect of being educated in purchasing in a definite manner, which is the first element of economy. No single legitimate function of the municipal administration enters so directly into the everyday life of the citizens.

The organization of such a department should be simple. As an illustration may be taken a city of about one hundred thousand inhabitants. There should be an executive head or commissioner, who should have a clerk and stenographer, four assistant commissioners or chiefs of divisions, namely, chief of electric meters, chief of water meters, chief of gas meters, and chief of weights, scales and measures. Under each of these chiefs should be two inspectors, although the chief of scales, weights and measures should probably have four. Two vehicles would answer the whole department. In many cities the electric meters, gas meters, and water meters

ordinarily come under the jurisdiction of separate departments, there being a somewhat erroneous idea prevailing that, from a standpoint of financial control, they should come under these other departments. But, economically, all functions of testing should more properly come under a testing department such as the one here considered. The commissioner of weights and measures should have an office and a laboratory or mechanical division equipped with the proper standards for making the comparison with commercial apparatus. The expense of such an equipment would depend somewhat upon the particular kind of manufacturing industries prevailing in the municipality. The cost of laboratory equipment and working standards, including the inspectional kits carried by the inspectors, would probably not, at first cost, exceed \$4,000, divided about equally among the four subdivisions of the department.

The administration of the department is materially simplified if, in inspecting the various kinds of apparatus under its jurisdiction, definite specifications for apparatus are issued and these regulations adhered to by the department. The department should establish a firm policy of tolerances and variations on commodities delivered or ready to be delivered to the consumers or to the municipality. No apparatus should be allowed to be installed or used for the purpose of measurement of any kind which has not first been inspected, tested and approved by the department. This is very essential as it stops the launching of false apparatus. The head of the department in his regulations should confer and co-operate with the head of the state department, if there be such, in order that there may be uniformity in methods of administration in the various municipalities.

A very important function of the administration of the department is the prosecution of violations of the laws relating to the correctness of the weighing and measuring devices and the manner of sale of commodities. Where such law is by ordinance it would be advisable for the head of the department to confer with the similar state department relative to the form of such ordinances in order that there may be uniformity in the ordinances. Such is the case in the State of New York where practically all the ordinances relating to weights and measures follow one uniform type.

The department should, in its educational function, give occasional exhibits to show the people what has been done and to educate the consumers how best to protect themselves. Such occa-

sions frequently arise in talks to church clubs, schools, food fairs, association meetings, etc.

A municipal ordinance relating to weights and measures should establish, first, a department, together with a provision for the salaries of the regular employees of the department and a provision that the expenses be paid in the regular way in which such expenses are paid by the particular municipality. The ordinance should prescribe that no weighing or measuring device can be used until it has been inspected, tested and sealed by the department of weights and measures; and, where particular classes are licensed, such as peddlers, their license should be granted only on condition that the apparatus used by them has been tested and sealed. The duties, outlined in the ordinance, should be broad enough not to hamper the department by picayune technicalities, which, of course, will often arise in the prosecution of violators. The following wording of the ordinance is suggested:

The commissioner of weights and measures shall have a general supervision of the weighing and measuring devices in the city and in use in the city. He shall take charge of, and safely keep, the primary and working standards of the city. He shall have the power within the city to inspect, test, try and ascertain if they are correct all weighing and measuring devices and instruments of every kind and any mechanical device for measurement and the tools, appliances or accessories connected therewith that are used or are employed within the city by any proprietor, agent, lessee or employee in determining the size, quantity, extent, area of quantities, things, produce, articles for distribution or consumption or use, or offered or submitted by such person or persons for sale, for hire or award. He may, for the purpose of making a proper inspection and test and the general performance of his duties, enter or go into or upon, and without form of warrant, any stand, place, building or premises, may stop any peddler, vender, coal dealer, junk dealer, ice wagon, or any dealer whatsoever, for the purpose of making any proper test. Whenever he finds a violation of the laws relating to weights and measures, he shall cause the violator to be prosecuted.

Such a provision is broad enough to cover all kinds of weighing and measuring devices, including not only those used for the sale of commodities, but those used for the purpose of estimating the compensation of employees, as is done in a great many manufacturing institutions. The ordinance should prescribe a penalty for the possession of a false weighing or measuring device and an increased penalty for second and subsequent violations. The ordinance should prescribe that all commodities, sold within the city, shall be sold by

standard weight or standard measure, provided, however, that such commodities which appear as a unit in the state of nature may be sold by numerical count. The department should establish tares and tolerances and maximum variations, which are allowable.

The shortcoming of most laws and ordinances is that they go into unnecessary and minute details, which should be a matter of regulation and administration. Where regulations are issued, such regulations would be required to be made in printed form and advertised for a period of sixty days before they go into effect.

The efficiency of a weights and measures administration will be highest when the administration will insist on four things: (1) The elimination of the launching of false apparatus or apparatus which, from its construction, is such as to facilitate the perpetration of fraud or is not such as to be conducive of proper service; (2) always a firm and impartial weighing of evidence in cases of violation, as to whether an element of deceit or fraud is involved; (3) taking into conference the business interests and business men of the municipality, thereby obtaining their co-operation in eliminating the evils of short or false weighing and measuring, whether intentional or accidental; and (4) a full, lucid report on work which has been done by the weights and measures department.

In conclusion, an efficient inspectional system of the weighing and measuring devices which enter into our everyday life, and every hour of every day, and whose accuracy affects directly the cost of such commodities is a necessary and welcome function of every municipality. This has long been recognized by all civilized nations and municipalities, with the exception of a great number of municipalities of the United States, due largely to the lack of appreciation of the subject by the federal and state governments of the United States.